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Original article

EXTRACTION AND CHARACTERISATION OF *BRUCELLA ABORTUS* STRAIN RB51 ROUGH LIPOPOLYSACCHARIDE

A. KALANTARI[1,2], T. NASERPOUR FARIVAR[1], A. PEYMANI[1], M. ASLANIMEHR[1] & R. BAGHERI NEJAD[2]

[1]Cellular & Molecular Research Center, Qazvin University of Medical Sciences, Qazvin, Iran; [2]Brucellosis Department, Razi Vaccine and Serum Research Institute, Agricultural Research, Education and Extension Organization, Karaj, Iran

Summary

Kalantari, A., T. Naserpour Farivar, A. Peymani, M. Aslanimehr & R. Bagheri Nejad, 2017. Extraction and characterisation of *Brucella abortus* strain RB51 rough lipopolysaccharide. *Bulg. J. Vet. Med.* (online first).

Brucellosis is an important zoonotic disease with considerable impacts on human and animal health. *Brucella abortus* strain RB51 vaccine is used for prevention of bovine brucellosis in Iran. Due to strain roughness, available serological tests cannot detect vaccinated animals. Detection of serological responses to the vaccine is important to monitor accurate vaccination implementation. Rough lipopolysaccharide (RLPS) of RB51 strain was extracted and characterised to develop serological tests for diagnosis of vaccinated animals. RLPS was extracted using phenol-chloroform-petroleum ether and evaluated by limulus amebocyte lysate (LAL) assay, sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) and agar gel immunodiffusion (AGID). According to our results, the extracted RLPS caused positive reaction in LAL assay. In SDS-PAGE, a band with a molecular weight around 14 kDa was identified after specific staining using silver nitrate. Double AGID of the RLPS with a hyperimmune serum resulted in a precipitation line formation. Our study showed that the method can be successfully used to extract RLPS from *Brucella abortus* strain RB51 as confirmed by LAL assay, PAGE and AGID.

Key words: brucellosis, RB51 vaccine, rough lipopolysaccharide

INTRODUCTION

Brucellosis is an important bacterial zoonosis which remains a human and animal health problem in many countries (Godfroid *et al.*, 2011). It is caused by Gram-negative coccobacilli belonging to the genus *Brucella* which are aerobic, non-motile and facultatively intracellular parasites (Seleem *et al.*, 2010). Each *Brucella* species has a preferred animal host (Poester *et al.*, 2013). Bovine brucellosis is mainly caused by *Brucella abortus* while other species such as *B. melitensis* and *B. suis* have been also implicated. In cattle, the disease is characterised by reproductive problems including abortion, stillbirth, infertility and decline in milk